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23117	7590	07/21/2004		
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714				
			EXAMINER ILDEBRANDO, CHRISTINA A	
			ART UNIT 1725	PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/778,103  
Filing Date: February 07, 2001  
Appellant(s): OKUMURA ET AL.

\_\_\_\_\_  
Jeffry H. Nelson  
For Appellant

**EXAMINER'S ANSWER**

**MAILED**

**JUL 21 2004**

**GROUP 1700**

This is in response to the appeal brief filed May 26, 2004.

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**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) Grouping of Claims**

Appellant's brief includes a statement that claims 21, 23, and 19 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

US 4,049,583	LAUDER	9-1977
JP 7-080315	SHIGERU et al.	3-1995
EP 0 624 393	NAKATSUJI et al	5/94

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**Claims 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
Lauder in view of Shigeru et al.**

Lauder (US 4,049,583) discloses a catalyst composition and process for the purification of exhaust gases from internal combustion engines (column 1, lines 15-21). The catalyst composition comprises metal oxide compounds of the type  $[A^{1-x}A^2][B'_{1-y}Me_y]O_3$  (column 4, lines 15-20), where "Me" can be iridium (column 4, lines 28-30), "A" can be cesium, rubidium, potassium, sodium, barium or silver, or rare earth metal

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oxides (column 4, line 65 – column 5, line 17), and “B” can be manganese, calcium, strontium, chromium, magnesium, iron, cobalt, nickel, or copper (column 5, lines 17-42). Specific examples of suitable compounds falling within the compositions instantly claimed can be found at column 8, line 50, column 9, lines 4, 7, 10, 19, and 20, and column 10, lines 29 and 31. The reference teaches that the catalyst composition may be supported on refractory inorganic oxides such as silica, alumina, titania, and zirconia (column 12, lines 45-55). The reference teaches that the catalyst will catalyze the oxidation of hydrocarbons and carbon monoxide as well as the reaction between nitrogen oxide and carbon monoxide to give nitrogen and carbon dioxide (column 13, lines 44-69). The examples detail the use of temperatures falling within the ranges instantly claimed.

The reference does not disclose that the catalyst contains sulfur.

Shigeru et al. (JP 7-80315) discloses a catalyst for the purification of exhaust gas comprising iridium supported on a carrier including alumina, silica, titania, zirconia,  $\text{SO}_4/\text{ZrO}_2$ ,  $\text{SO}_4/\text{ZrO}_2\cdot\text{TiO}_2$ ,  $\text{SO}_4/\text{ZrO}_2\cdot\text{Al}_2\text{O}_3$  (Abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the invention of Lauder in light of the disclosure of Shigeru et al. Shigeru et al. teaches the suitability of sulfated supports as carriers for catalysts in the purification of exhaust gases and further teaches the equivalence of these sulfated supports to the alumina, zirconia, and silica supports taught by Lauder. Because of the art recognized functional equivalence of the sulfated supports taught by

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Shigeru et al. to the supports taught by Lauder as carriers for catalysts useful in the purification of exhaust gases, it would have been obvious to one of ordinary skill to have substituted one known component for the other in the catalyst taught by Lauder.

**(11) Response to Argument**

**I. Appellant argues that Nakatsuji does not disclosed any one catalyst with iridium, rare earth metal, and sulfur.**

Appellant's arguments with respect to the rejection of claims 21 and 22 under 35 USC 102(b) over Nakatsuji et al. (EP 0 624 393) have been considered and are persuasive. The rejection has been withdrawn.

**II. Appellant argues that Lauder and Shigeru do not disclose or suggest a catalyst with iridium, rare earth metal, and sulfur.**

With respect to the rejection under 35 USC 103(a), Appellant argues that it would not have been obvious to modify or abandon the  $ABO_3$  crystal structure taught by the primary reference to Lauder to form the claimed invention. Appellant argues that by teaching away from non- $ABO_3$  catalysts, Lauder cannot be properly applied to reject a non- $ABO_3$ . This argument has been considered but is not commensurate in scope with

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what has been claimed. The instant claims require a complex oxide. The specification does not define a complex oxide as a non- $\text{ABO}_3$  oxide. In fact, the illustrative structures of suitable complex oxides include  $\text{ABO}_3$  compositions. Refer to paragraph [0090] of the instant specification. Therefore, there is nothing in the language of the instant claims which would preclude the use of an  $\text{ABO}_3$  oxide, such as the oxide material taught by Lauder.

Appellant further argues that it is believed that the  $\text{ABO}_3$  crystal structure is not useful to form the claimed invention and therefore the  $\text{ABO}_3$  crystal structure disclosed in Lauder would not be suitable to form the claimed catalyst. However, Appellant has not provided any evidence or documentation tending to support this allegation. Therefore, absent any evidence to the contrary, it is the position of the examiner that the complex oxide disclosed by the Lauder reference would meet the complex oxide required by the instant claims.

Appellant further argues that sulfur is not a constituent of the  $\text{ABO}_3$  crystal structure disclosed in Lauder. Appellant argues that the secondary reference, Shigeru et al., does not disclose a catalyst including a metallic sulfate having iridium deposited thereon and does not teach adding sulfur to the  $\text{ABO}_3$  structured catalyst disclosed in Lauder. Appellant argues that there is no teaching or suggestion in the prior art to combine Lauder and Shigeru et al. to create the claimed invention.

These arguments have been considered but are not persuasive. First, these arguments do not appear to be commensurate in scope with what has been claimed or consistent with the reasoning set forth in the statement of the rejection. The instant

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claims do not require a metallic sulfate having iridium deposited thereon, only a catalyst containing sulfur. The instant claims do not require that the sulfur be formed into a complex oxide and the rejection at issue does not propose such a modification. Rather, the examiner contends that it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the catalyst taught by lauder to include a sulfated support, such as that taught by Shigeru et al., in light of the teaching by Shigeru et al. that such a support is functionally equivalent to the supports taught by Lauder. It is the position of the examiner that one of ordinary skill would have been motivated to substitute any art recognized, functionally equivalent support material, with a reasonable expectation of success, especially considering the teaching by Lauder that the support materials are not particularly limited. Refer to columns 12-13 of '583.

Finally, Appellant argues that when compositions are deposited on a catalyst the effects vary in accordance with the makeup of the composition in unpredictable ways. This argument has been considered but is not persuasive. Lauder suggests depositing the catalytic material on various support materials. The teaching by the secondary reference that the sulfated supports are functionally equivalent to the supports specifically mentioned by Lauder provides motivation to one of ordinary skill to substitute one functionally equivalent support material for another with a reasonable expectation of success. While catalysis is an unpredictable art, the fact that the prior art recognizes the support materials as functionally equivalent materials for the purification of exhaust gas would suggest to one of ordinary skill that they would behave in a

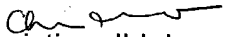


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predictable manner. Appellant has not presented any evidence tending to demonstrate that the claimed combination would present any unexpected results.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
Christina Ildebrando  
Patent Examiner  
Art Unit 1725

7/19/04

CAI  
July 19, 2004

Conferees  
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